State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER U-R-1-83

Relating to Certification of New Heavy-Duty Off-Road Equipment Engines

CATERPILLAR, INC.

Pursuant to the authority vested in the Air Resources Board by Sections 43000.5, 43013 and 43018 of the Health and Safety Code; and,

Pursuant to the authority vested in the undersigned by Sections 39515 and 39516 of the Health and Safety Code and Executive Order G-45-9;

IT IS ORDERED AND RESOLVED: That the following Caterpillar, Inc. 1999 model-year engine, with rated power between 175 and 750 horsepower, and exhaust emission control systems are certified as described below for use in heavy-duty off-road equipment:

Typical Equipment Usage: Industrial Equipment

Fuel Type: Diesel

Engine Family	Liters (Cubic Inches)	Exhaust Emission Control Systems and Special Features
XCPXL10.4MRB	10.4 (638)	Turbocharger Smoke Puff Limiter Charge Air Cooler

Engine models and codes are listed on attachments. Production engines shall be in all material respects the same as those for which certification is granted.

The total hydrocarbons (THC), carbon monoxide (CO), nitrogen oxides (NOx), and particulate matter (PM) certification exhaust emission standards, in grams per brake horsepower-hour (g/bhp-hr), and the opacity of smoke emission standards, in percent (%), during acceleration (Accel), lugging (Lug), and peak (Peak) modes, for this engine family are (Title 13, California Code of Regulations, Section 2423):

Exhaust Emissions (g/bhp-hr)				Smoke Opacity (%)		
THC	CO	NOx	PM	Accel	Lug	Peak
1.0	8.5	6.9	0.4	20	15	50

The THC, CO, NOx and PM exhaust emission certification values, in g/bhp-hr, and the opacity of smoke emission certification values, in percent (%), for this engine family are:

Exhaust Emissions (g/bhp-hr)				Smoke Opacity (%)		
THC	CO	NOx	PM	Accel	Lug	Peak
0.3	0.8	6.1	0.3	16	9	20

BE IT FURTHER RESOLVED: That the listed engine models comply with the "Exhaust Emission Standards and Test Procedures--Heavy-Duty Off-Road Diesel Cycle Engines" (Title 13, California Code of Regulations, Section 2423) for the aforementioned model year.

BE IT FURTHER RESOLVED: That the listed engine models also comply with the "Emission Control Labels--1996 and Later Heavy-Duty Off-Road Diesel Cycle Engines" (Title 13, California Code of Regulations, Section 2424) for the aforementioned model year.

BE IT FURTHER RESOLVED: That for the listed engine models, the manufacturer has submitted the materials to demonstrate certification compliance with the Board's emission control system warranty provisions (Title 13, California Code of Regulations, Section 2425 et seq.).

Engines certified under this Executive Order must conform to all applicable California emission regulations.

Executed at El Monte, California this 16th day of December 1998.

R. B. Summerfield, Chief
Mobile Source Operations Division

LARGE ENGINE MODEL SUMMARY

11/9/98

EO: U-R-1-83

Manufacturer: CATERPILLAR INC. Process Code: New Submission

EPA Engine Family: XCPXL10.4MRB Manufacturer Family Name: NA

1.Engine Code	2.Engine Model	3.BHP@RPM (SAE Gross)	4.Fuel Rate: mm/stroke @ peak HP (for diesel only)	5.Fuel Rate: (lbs/hr) @ peak HP (for diesels only)	6.Torque @ RPM (SEA Gross)	7.Fuel Rate: mm/stroke@peak torque	8.Fuel Rate: (lbs/hr)@peak torque	9.Emission Control Device Per SAE J1930
Note: Peak HP	and Peak Torque	fuel rates are	nominal values.	Due to product-	ion engine avgs.	these fuel rates	may change.	
1 - Cert Engine	3208	300 @ 2400	105	113.0	802 @ 1690	122	92.5	EM, DI, TC, SPL, CAC
2	3208	250 @ 2400	86	93.1	674 @ 1690	101	76.5	EM, DI, TC, SPL, CAC
3	3208	245 @ 2400	85	91.4	662 @ 1690	99	75.1	EM, DI, TC, SPL, CAC
4	3208	235 @ 2400	81	87.6	637 @ 1690	95	72.1	EM, DI, TC, SPL, CAC
5	3208	230 @ 2400	80	85.7	625 @ 1690	93	70.5	EM, DI, TC, SPL, CAC
6	3208	225 @ 2400	50	84.0	612 @ 1690	91	69.1	EM, DI, TC, SPL, CAC
7	3208	231 @ 2350	81	85.1	635 @ 1690	93	70.4	EM, DI, TC, SPL, CAC
8	3208	300 @ 2600	102	119.5	800 @ 1690	122	92.2	EM, DI, TC, SPL, CAC
9	3208	275 @ 2600	93	108.8	732 @ 1690	110	83.6	EM, DI, TC, SPL, CAC
10	3208	271 @ 2500	89	103.9	722 @ 1690	109	82.4	EM, DI, TC, SPL, CAC